9626/31/M/J/20/Q2

Ultra-high definition television is available from video streaming services over the internet.

(a) Describe the features of ultra-high definition television systems that improve the viewing experience.

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9626/32/M/J/20/Q2

2 Many countries use holographic images on their bank notes.

(a) Describe how a holographic image is created.

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STUDENTS RESOURCE

CamScanner

(b) Give **one** reason why countries use holographic images on their bank notes.

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(c) Describe **two** other uses of holographic imaging.

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STUDENTS RESOURCE

CamScanner

9626/32/M/J/20/Q7

3 By weighing up the advantages and disadvantages, evaluate the impact of tissue engineering on medicine.

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9626/32/O/N/20/Q8

4 Describe how robotics are being used in space exploration.

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9626/32/F/M/21/Q6

5 Holographic imaging is used in industrial applications.

Describe, in detail, how holographic imaging could be used in each of the following scenarios:

(a) an astronaut in a spacecraft

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STUDENTS RESOURCE

CamScanner

(b) a car manufacturing process

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(c) a doctor in a hospital.

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9626/32/F/M/21/Q2

6 Virtual reality and augmented reality are used when training firefighters.

(a) Describe the differences between virtual reality and augmented reality.

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(b) Describe the advantages of using virtual reality when training firefighters.

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STUDENTS RESOURCE

CamScanner

9626/32/O/N/20/Q9

7 Describe the use of fourth (4th) generation optical data storage systems to store and retrieve data.

[6]

9626/32/O/N/20/Q8

8 Describe how robotics are being used in space exploration.

[6]

STUDENTS RESOURCE

CamScanner

9626/33/M/J/18/Q9

9 (a) Describe how vision enhancement technology can assist visually impaired people when walking around a shopping street.

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(b) Describe **two** other uses of vision enhancement technology.

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STUDENTS RESOURCE

CamScanner

9626/33/M/J/18/Q7

10 Describe how holographic optical disk storage technology uses lasers to store vast amounts o data.

[6]

STUDENTS RESOURCE

CamScanner

9626/33/M/J/18/Q2

1 Holographic imaging is an emerging technology.

Describe how holographic imaging could be used in the field of medicine.

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9626/32/F/M/18/Q11

12 Analyse the impact of the introduction of high definition television systems.

[5]

STUDENTS RESOURCE

CamScanner

9626/32/F/M/18/Q7

Describe how wearable computers can enhance health care.

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STUDENTS RESOURCE

CamScanner

9626/31/M/J/17/Q7

14 Evaluate the use of 3D printing for manufacturing goods.

[8]

STUDENTS RESOURCE

CamScanner

9626/32/F/M/17/Q2

15 Wearable, or body-borne, computers are miniature electronic devices worn by the bearer.

Analyse the use of wearable computers by the police.

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STUDENTS RESOURCE

CamScanner

9626/31/M/J/20/Q1

16 (a) Describe how computer-controlled 3D printing creates objects.

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(b) Describe, with examples, how 3D printing can be used in medicine by surgeons when treating patients.

[6]

STUDENTS RESOURCE

CamScanner

9626/32/O/N/19/Q7

Robotic delivery systems are being used by organisations to deliver goods direct to customers.

Evaluate the use of robotics in the delivery of goods.

[8]

STUDENTS RESOURCE

CamScanner

9626/31/M/J/19/Q12

18 Analyse the use of virtual reality in healthcare.

[6]

STUDENTS RESOURCE

CamScanner

9626/31/M/J/19/Q11

19 Discuss the impact of wearable computers in manufacturing.

[6]

STUDENTS RESOURCE

CamScanner

9626/31/M/J/19/Q8

20 An online store sells goods through its website. The website has an 'automated online assistant' to help the customer through the purchasing process. An 'automated online assistant' on a website is a computer program that uses artificial intelligence to provide a customer with service and assistance.

(a) Describe how the components of an 'automated online assistant' provide help to the customer.

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(b) Explain **two** benefits of the use of an 'automated online assistant'.

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STUDENTS RESOURCE

CamScanner

9626/32/F/M/19/Q5

3D printing is used in medicine.

(a) Describe **two** benefits of being able to produce artificial blood vessels by 3D printing.

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(b) Describe how 3D printing could be used, apart from producing drugs at home, to improve the effectiveness of the manufacture of prescription drugs.

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(c) Describe the drawbacks of using 3D printing at home to produce prescription drugs.

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STUDENTS' RESOURCE

CamScanner

9626/33/O/N/18/Q4

22 Industrial robots are used to position and fit a windscreen to a new car during a car assembly process.

Describe ways in which the necessary positional and procedural data could be 'taught' to the robot so that the windscreen is correctly fitted to the car.

STUDENTS RESOURCE

9626/32/O/N/18/Q3

3 Evaluate the impact on the environment of the use of robotics in industry.

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STUDENTS RESOURCE

CamScanner

9626/33/M/J/18/Q9

24 (a) Describe how vision enhancement technology can assist visually impaired people when walking around a shopping street.

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(b) Describe **two** other uses of vision enhancement technology.

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STUDENTS RESOURCE

CamScanner

9626/33/M/J/18/Q7

25 Describe how holographic optical disk storage technology uses lasers to store vast amounts of data.

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STUDENTS RESOURCE

CamScanner

9626/33/M/J/18/Q2

26 Holographic imaging is an emerging technology.

Describe how holographic imaging could be used in the field of medicine.

[8]

STUDENTS RESOURCE

CamScanner

9626/32/F/M/18/Q11

27 Analyse the impact of the introduction of high definition television systems.

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9626/32/F/M/18/Q7

28 Describe how wearable computers can enhance health care.

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STUDENTS RESOURCE

CamScanner

9626/31/M/J/17/Q7

29 Evaluate the use of 3D printing for manufacturing goods.

[8]

STUDENTS RESOURCE

CamScanner

9626/32/F/M/17/Q2

0 Wearable, or body-borne, computers are miniature electronic devices worn by the bearer.

Analyse the use of wearable computers by the police.

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STUDENTS RESOURCE

CamScanner